MEMORANDUM

TO: Phil Marsosudiro, Eastern Research Group (ERG)

CC: Landfill MACT Project File

FROM: Michele Laur, Environmental Protection Agency (EPA)

DATE: December 23, 1998

SUBJECT: Final Meeting Notes for July 23, 1998 Industry Stakeholder Meeting

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1.0 INTRODUCTION AND PURPOSE OF MEETING

The July 23, 1998 Industry Stakeholder Meeting was the first in a series of meetings that will be held throughout development of the Maximum Achievable Control Technology (MACT) standards for municipal solid waste (MSW) landfills, commonly referred to as the Landfill MACT.

Goals for this meeting included discussion of the following:

- Regulatory mandates under Section 112 of the Clean Air Act (Act);
- MACT development progress to date;
- Information needs for MACT and presumptive MACT (PMACT) development; and
- Future meetings and stakeholder involvement.

Michele Laur of OAQPS chaired the meeting, which included presentations by Ruth Mead, Lisa Huff, and Tom Waddell of ERG. Overheads and handouts used during the meeting are included as attachment 1 to this memorandum.

2.0 LOCATION AND DATE

This Industry Stakeholder meeting was held from 8:00 a.m. to 1 p.m. on July 23, 1998 in classroom #3, at the U.S. Environmental Protection Agency Environmental Research Center in Research Triangle Park, North Carolina.

3.0 ATTENDEES

A copy of the attendance list for the meeting is included in table 1.

4.0 DISCUSSION

The following subsections summarize discussions of numerous topics covered during the stakeholder meeting. Key issues centered around two interests: first, an efficient regulatory development process that takes into account both the environmental controls required by the New Source Performance Standards (NSPS) for MSW landfills as well as the data gathered while developing the NSPS; and second, a complete regulatory development process that defensibly meets all the regulatory requirements set forth in section 112 of the Act and other applicable rules. The need for cooperation and communication was emphasized repeatedly throughout the meeting.

The topics are generally arranged in the same order that they were presented during the meeting. Information presented in the slides is generally omitted from the summaries, below, except where necessary to illustrate the discussion.

4.1 Regulatory Background and Development Issues for MACT and PMACT

Michele Laur began the meeting by discussing the CAA Section 112 requirements for reducing emissions of hazardous air pollutants from all affected sources to levels achieved by the best-performing affected sources. The schedule for developing a MSW landfill MACT is

Table 1. Attendees at July 23, 1998 Landfill MACT Stakeholder Meeting

NAME	AFFILIATION	PHONE	FAX	EMAIL
Bernard Bigham	Chesapeake Environmental Services	410-686-8070	410-686-8682	bb6860728@aol.com
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Brian Guzzone	SWANA	301-585-2898	301-589-7068	bguzzone@swana.org
Ben Heuiser	NEO Corporation	612-373-5464	612-373-5465	ben.heuiser@nrgenergy.com
Bryan Holbert	DTE Biomass Energy, Inc.	630-910-8372	630-910-8382	bholbert@gateway.net
Lisa Huff	Eastern Research Group, Inc.	919-468-7903	919-468-7801	lhuff@erg.com
Andi Kenney	Waste Management, Inc.	630-572-2994	630-684-7061	andi_kenney@wastemanagement.com
Michele Laur	EPA, OAQPS	919-541-5256	919-541-0246	laur.michele@epamail.epa.gov
Phil Marsosudiro	Eastern Research Group, Inc.	919-468-7904	919-468-7801	pmarsosu@erg.com
Ruth Mead	Eastern Research Group, Inc.	919-468-7841	919-468-7801	rmead@erg.com
Steve Menoff	EMCON	630-505-9450	630-505-9454	smenoff@emconinc.com
Mike Michels	EMCON	920-894-4088	920-894-7488	mmichels@emconinc.com
Dan Miles	Southeastern Public Service Authority	757-420-4700	757-424-4133	dmiles@spsa.com
Rick Oakley	Browning-Ferris Industries	281-870-7894	281-584-8545	RICK.OAKLEY@BFI.COM
Susan Radomski	Eastern Research Group, Inc.	919-468-7905	919-468-7801	sradomsk@erg.com
Edward Repa	NSWMA	202-364-3773	202-966-4818	erepa@envasns.org
Pete Romzick	Waste Management, Inc.	630-218-1784		pete_romzick@wmx.com
Edmund Skernolis	Waste Management, Inc.	202-628-3500	202-628-0400	Ed_skernolis@wastemanagement.com
Pat Sullivan	SCS Engineers	925-829-0661		psullivan@scseng.com
Susan Thorneloe	EPA, ORD	919-541-2709	919-541-7885	thorneloe.susan@epamail.epa.gov
Greg Vogt	SCS Engineers	703-471-6150	703-471-6676	gvogt@scseng.com
Tom Waddell	Eastern Research Group, Inc.	919-468-7821	919-468-7801	twaddell@erg.com
Rick Watson	Delaware Solid Waste Authority	302-739-5361	302-739-4287	rpw@dswa.com
Ed Wheless	L.A. County Sanitation Districts	562-699-7411	562-699-7411	ewheless@lacsd.org
Wayne Woodlief	Wake County Solid Waste Landfill	919-865-6202	919-856-6233	wwoodlief@co.wake.nc.us

extremely aggressive, with a November 15, 2000 deadline. She stressed that, though the schedule is aggressive, it is made more achievable by the knowledge base and communications base developed during the recent NSPS process. She stated that it is important to remember that the MACT standard must conform not only to the requirements of Section 112, but also to requirements imposed by Executive Orders, SBREFA, Unfunded Mandates provisions, and other relevant statutes and policies. Ms. Laur's discussion of the regulatory process focused on the following individual issues.

PMACT — One of the first tasks in developing the Landfill MACT will be the development of a presumptive MACT (PMACT), a quick and early estimate of what the final MACT is likely to be. The PMACT may be used by the States as guidance in the event that the MACT rule is not finalized by the time States are required to do section 112(g) ("case by case") MACT determinations. In addition, the PMACT fosters discussions with stakeholders early-on in the rulemaking effort. The PMACT is not a legal entity like NSPS or MACT but a process that fosters open discussions and the exchange of information to support the MACT rule development effort.

MACT Floor and MACT — Edmund Skernolis asked for clarification on how the MACT floor would be calculated, whether standards would be set above the MACT floor, and how economic considerations might factor into setting the final MACT standard. Ms. Laur responded that the goal is to identify the performance level of the best performing 12 percent of existing sources. This information is used to determine the MACT floor. In previous projects, this has been done though examining what control techniques are in use at the best performing sources. The standards may specify a performance level/standard rather than require a specific technology. The approach may provide sources with options to achieve compliance. With regard to economic considerations, economic impacts are considered during the rulemaking process to determine the impact of the rule and whether or not to set standards more stringent than the MACT floor.

In response to a question on whether EPA has identified technologies beyond flares, turbines, engines, and boilers, Susan Thorneloe replied that there are ORD programs such as the

Environmental Technology Verification program to examine which emerging technologies (e.g., catalysts or fuel cells) work and at what cost for what benefit. She also commented that most emerging technologies such as fuel cells are not yet commercially and economically viable.

When asked if a standard would be established for each individual HAP or if a single surrogate pollutant would be used, Michele Laur said the standard likely will not be established for each individual HAP but could use some individual species as a surrogate measure instead of attempting to specify exactly which individual HAP are expected to be emitted and controlled from every facility.

Subcategorization — Edmund Skernolis asked what happens to the "remaining 88 percent" after EPA establishes a MACT floor based on the top performing 12 percent. He also wanted to know how the rule will account for sources that have just installed controls to meet the NSPS and EG requirements. He noted that some of these facilities will barely be operating at break-even, and additional costs would force closure, which would only result in more emissions.

Michele Laur responded that once the floor is established, the rest of the sources may have to adjust. However, subcategorization on the basis of size and various technical criteria is possible, which could influence who will have to install controls. In general, EPA has some flexibility under Section 112 because Section 112 allows subcategorization of the source category. In addition, economic impacts and the impacts on small business will be evaluated.

Other Issues — Ms. Laur stressed that while many issues factor into regulatory development, the MACT process is less influenced by non technical concerns than was the NSPS because Section 112 includes technical requirements such as the MACT floor requirement. For this reason it is important to correctly characterize/profile the industry, to identify outliers as outliers rather than typical. For example, EPA would like to acquire sufficient information to "close the loop" on issues related to mercury and dioxin emissions from landfills. Though it is impossible to demonstrate that emissions from every landfill are not a problem, a subset of landfills might be tested to determine an upper bound for dioxin and mercury emissions. These

are a few example issues where additional data gathering may be required to correctly characterize landfill emissions and resolve issues.

Responsibility for Compliance — Dan Miles asked whether meeting MACT requirements would be the responsibility of the landfill owner/operator versus the owner/operator of the gas collection and energy recovery system. In many cases, the two are different entities. Michele Laur responded that in the NSPS, EPA added language indicating that the landfill owner/operator must meet the regulatory requirements of the NSPS, with the presumption that the landfill owner/operator could include requirements in their contract with the collection system owner/operator to assure the standard is met. For the MACT rule, EPA will reevaluate the issue and attempt to clearly specify the requirements for the landfill owner/operator, and the gas collection and energy recovery system owner/operator if warranted. However, for the NSPS and the MACT rule, the Office of Enforcement and Compliance Assurance is responsible for making the final applicability and compliance determinations.

4.2 Streamlining and Integration with NSPS and Other Rules

Ruth Mead of ERG introduced a discussion of coordination between MACT and other rules (e.g., NSPS and state rules) and other programs (e.g., the Landfill Methane Outreach Program (LMOP)). The MACT standard development will consider requirements of NSPS and Emission Guidelines (EG) and will strive for consistency between NSPS and MACT where possible, within the constraints of the CAA.

Industry Stakeholders, EPA, and ERG staff discussed the following specific issues:

NSPS Sufficient for MACT? — Ed Wheless asked if a conclusion may be reached that non-methane organic compounds (NMOCs) are a surrogate for HAP, and that the NSPS would be a sufficient to control HAP without a separate MACT standard. The EPA agreed that other rules use surrogates such as NMOC for organic HAP. The finding that the NSPS is sufficient for HAP control remains a possibility. However, EPA must determine if there are major sources of HAP that are not controlled by the NSPS, determine the MACT floor for landfills, and investigate area sources before making such a determination.

Issues Related to the Proximity of NSPS and MACT — Pat Sullivan asked if the MACT standards are coming along too soon after the NSPS and EG, and whether it would be better to wait to see what resulted from the latter. Michele Laur indicated that the proximity is in part because the NSPS rulemaking effort took longer than expected and because there is a statutory deadline for MACT. Ruth Mead indicated that the NSPS and EG, which have put controls on many landfills, will be taken into account in performing MACT floor and regulatory impacts analyses and developing the MACT standard. Information developed for the NSPS (e.g., control options, emission models, cost evaluations, etc.) will be useful in creating the MACT standard, taking into account that much of the information is from the late 1980s, and changes (e.g., size distribution of landfills, and addition of landfill gas-to-energy projects) that have happened since then. For this reason, EPA must obtain information from the stakeholders to accurately characterize landfills, emissions, and controls as they are today.

State Rules and Streamlining Implementation — For sources in states with existing rules for MSW landfills that are as stringent as the MACT, Michele Laur noted that compliance with a State rule may be sufficient for compliance with MACT. Stakeholders are asked to provide any relevant state rule information to the MACT development team. This information could be cited in the MACT rule if equivalency can be determined.

Definitions and Cutoffs in NSPS, MACT, and Elsewhere — The group discussed definitions of terms like “new” and “existing,” “closed” and “closure,” along with evaluating the date on which a landfill last accepted waste, etc. Everyone acknowledged that these issues played a large role in developing the NSPS and will likely have an impact on the MACT. Michele Laur indicated that, at this point, it is a reasonable assumption that MACT will not consider landfills closed before the 1987 cutoff date used in the NSPS. However, emissions from older facilities may be examined to determine their impact.

Non-air-quality Benefits — In response to a question, Michele Laur pointed out that there are statutory and other reasons to look at potential non-air-quality benefits such as global climate, health risk, and other issues. The EPA plans to consider these ancillary issues more than in the past, but has not decided the full scope of this consideration.

Source Focus — Michele Laur indicated that the rule must focus on the source of the HAP emissions. Air emissions directly from landfills are the primary concern, and EPA will also examine emissions from leachate. Mobile sources will not be considered as part of this rulemaking effort.

Byproduct Emission Controls and the ICCR — The ICCR rulemaking process is still responsible for regulating emissions from flares, turbines, engines and boilers. However, the LMOP, which is supporting gas-to-energy projects, has been getting requests from environmental organizations to formally address by-product emissions. In an effort to support LMOP, the EPA will evaluate by-product emissions as part of this rulemaking effort for the sake of completeness and to determine if they pose an environmental problem.

Consistency between NSPS and MACT — The EPA will strive for consistency between NSPS and MACT to avoid contradictory requirements. The EPA will attempt to make requirements such as reporting consistent, in order to minimize efforts.

4.3 Other Issues Including Risk and Pollution Prevention

Risk Evaluations — Edmund Skernolis indicated that data is available showing that the health risk from this source category is very low from area sources and major sources. He asked if MACT can be omitted since it is meant to be an initial step if it can be demonstrated that landfills meet residual risk thresholds now? Mr. Skernolis mentioned that there may be a new section 112(c) list that shows that landfills are a small source compared to others on the urban toxics list.

Michele Laur responded that information would be needed to prove that landfills would fall below the residual risk threshold. Also, unless a source category is delisted or has no major sources, a MACT standard is required. (Although, as mentioned earlier it may be found that the NSPS requirements are sufficient for the MACT.) Regarding urban air toxics, landfills may be smaller than other sources on the list, but making the list is significant enough for the source category to warrant further examination.

Ms. Laur also noted that exposure and risk assessment modeling may be used to evaluate risk. In previous rulemaking efforts, the models looked at maximum exposed individuals and at populations as a whole. Model landfills that represent the range of expected conditions will be used, since dispersion and exposure modeling for every landfill would be impractical. The preference is to know as much detail as possible so that when the process is finished, there is a basis for the outcome. This means factoring in a number of issues such as economics and technical issues.

Bernard Bigham asked about the Subtitle C standard for land disposal that has stringent levels associated with eatable and drinkable standards and that may also be related to air standards. One stakeholder indicated that it may be difficult to justify anything less than the Subtitle C standard. The EPA agreed to examine the Subtitle C standard to see how that may affect the MACT rule.

Pollution Prevention — There was a brief discussion on whether pollution prevention could be part of the MACT standards for landfills. Susan Thorneloe indicated that the experiences with NSPS would suggest that it will be very difficult to draw any conclusions about the impact of pollution prevention in anything other than gross terms within the time frame given for MACT development. Ms. Thorneloe said that the EPA and others attempted to develop some correlations between pollution prevention and emission reductions for municipal waste combustors with very limited success despite having more data and a longer time frame than this project. Stakeholders mentioned numerous issues including complexity and heterogeneity of the landfill source category that require consideration. With waste composition and landfill operation changing rapidly, and the large number of variables, it is very difficult to sort out the effects of pollution prevention on emissions.

Michele Laur agreed to take this under advisement in researching the possibility of a correlation between pollution prevention practices and emission reductions.

Format of Standards. Rick Watson asked if the MACT is likely to require a certain collection system efficiency. For example, Delaware has a 75 percent requirement. Another

stakeholder asked if EPA expects to change the way open flares are handled (these currently have design and operating requirements rather than a percent reduction or emission limit). The EPA replied that the NSPS and EG provide percent reduction and outlet concentration alternatives for combustion devices other than open flares. If owners choose to use an open flare, design criteria are provided because it would be difficult to measure emissions. For similar reasons, design criteria rather than a percent reduction are specified for the collection system. Alternative designs are allowed if they are equivalent. These same types of formats will likely be considered for the MACT rules.

4.4 Data Requests, Data Management, and Data Analysis

Information Collection Request (ICR) — Ed Wheless voiced concerns about the potential effort associated with an ICR. Greg Vogt asked EPA to confirm that the intent of current data gathering is to clarify and verify data rather than to "generate" new data. Edmund Skernolis asked EPA to consider any suggestions made in today's meeting that would help minimize the ICR effort and that would make it clear to the affected sources why EPA needs the requested information. Greg Vogt suggested that EPA discuss the draft ICR with industry to develop advanced/precise questions after identifying data gaps.

Michele Laur responded that, in general, EPA wants to obtain as much information as possible from data already in house and through informal requests rather than through an ICR. Also, some information is being collected on flares through the ICCR ICR. Site visits will also be conducted to get a better understanding of industry issues. However, EPA expects to create an ICR for landfills.

Michele Laur noted that the size and form of the ICR are not yet known and may be trivial. The EPA will develop the drafts and let representatives from this group make comments before sending them out. Many stakeholders have suggested ways of minimizing the ICR effort, and EPA will attempt to design an ICR that only fills in data gaps rather than asking for information unnecessarily.

The EPA does not intend to do "micro-level" surveys such as calling landfills to verify database information. The OMB constraints discourage such a search, so these types of inquiries are being avoided. Again, the more accurate information provided by industry, the less ICR data EPA will need.

HAP Estimates— Lisa Huff pointed out that HAP estimates from specific landfills are essential. Michele Laur stated that EPA will use data from the AP-42 background information files and any other available test data to estimate HAP emissions. Ben Heuiser and Bryan Holbert commented that emission estimation is an exceptionally difficult if not impossible task to do accurately. Ed Wheless commented that he provided several landfill flare test reports with HAP data to the ICCR project. Michele Laur stated that a review of ICCR data will be conducted. In addition, EPA has requested test data from States. A stakeholder suggested that HAP data may be available from landfills that have done Tier 2 testing for the NSPS or EG. Michele Laur stated she understood industry's concerns over the use of AP-42 factors to estimate emissions and would make efforts to review available data within the resource and time constraints of the project.

Will NSPS and EG Requirements Eliminate Nearly all the Potential Major Sources to be Regulated by MACT? And if so, can some of the Major Data Gathering and Regulatory Steps be Omitted? — Several stakeholders surmised that the NSPS and EG requirements would eliminate almost all potential major sources that would be regulated by the MACT, thereby obviating the need to collect detailed data from thousands of lesser-emitting landfills already exempted from the NSPS and EG, and perhaps obviating the need for any MACT rule at all.

Michele Laur responded that while the NSPS and EG may eliminate many potential major sources, there are still other reasons that require a thorough examination of the source category and a solid characterization of the industry. For example, residual risk, urban area sources, and the interest in a complete and defensible analysis are a few reasons for continuing the rulemaking effort. She stressed that major sources are only part of the MACT process, and that area sources may also need to be examined. Co-control from NSPS and EG may take care of everything, but an evaluation is required to prove that this is true. Currently, there is not

sufficient information to preclude data-gathering for specific subcategories. She expressed interest in the stakeholders' suggestions on how to perform incisive analyses that can reach defensible conclusions with a minimum of new data gathering and generation, but completeness should not be superseded by expediency.

Cost Considerations — Stakeholders expressed concern that some existing landfills already have collection and control systems in place that do not meet the EG. The MACT might require costly changes to these control systems for little additional emission reductions. The EPA requested information on existing landfill systems that would have trouble meeting the NSPS and EG level of control so that these can be considered in the cost and emission reduction impacts analyses.

Clarifying the Data Needs Request — In response to questions from stakeholders, Michele Laur reiterated an anticipation of needing cost information, improved source lists, any and all HAP test data, and comments on the accuracy of the information (e.g., the databases) already gathered. Several commenters pointed out that the various databases were assembled for different reasons, some contain only active landfills while others include closed landfills, etc., so the information in them is very different. For example, the LMOP database only looked at landfills bigger than a specific size threshold while the SWANA database focused on landfills with gas-to-energy projects. Susan Thorneloe described the ongoing QA efforts on the SWANA database. Michele Laur indicated that each data base would be reviewed for its potential value to the project.

5.0 ACTION ITEMS

The following action items will be conducted by the project team or stakeholders:

- The next meeting will be in November. It may include industry and State agency stakeholders.
- Tom Waddell will take care of distributing lists of participants and copies of slides to all of this meeting's participants.

- The project team will use STAPPA website and email for getting the word out on future meetings and for reporting on this meeting. State solid waste officers will be added to the stakeholder list.

- The project team will use EPA website for posting relevant information on MACT development and needs. A newsletter or something like that may be developed.

- Stakeholders can deliver written comments and other feedback to Michele Laur at EPA or to Lisa Huff at ERG.

- Stakeholders should submit any available data and information, or suggestions for data sources, to Michele Laur at EPA.

- The project team will contact the State and Local Association of Solid Waste Officials which does bi-yearly counts of solid waste facilities.

6.0 NEXT MEETINGS

A second meeting is planned for November. Details to be announced.

Attachment 1

MSW LANDFILL
Presumptive MACT

Industry Stakeholder Meeting

EPA ERC, Research Triangle Park
July 23, 1998

MSW LANDFILL
Presumptive MACT

I. Introduction and Opening Remarks

Michele Laur, EPA

MSW LANDFILL
Presumptive MACT

II. Goals of this Meeting

Michele Laur, EPA

Goals of this Meeting

- ➢ Clean Air Act, Section 112
- ➢ Progress to date
- ➢ Information needs
- ➢ Future meetings and stakeholder involvement

MSW LANDFILL
Presumptive MACT

III. Regulatory Background

Michele Laur, EPA

III. Regulatory Background

Clean Air Act
Section 112 Requirements /
MACT Standards

Section 112 Overview

- General goal of Section 112: to reduce emissions of toxic air pollutants from all affected sources to the levels achieved by the best performing affected sources
- Performance or technology based approach to regulation
  - Not risk management or public exposure approach

Section 112 Overview (cont.)

- Regulates hazardous air pollutants (HAP)
  - 188 pollutants are listed
- Based on maximum achievable control technology (MACT)

Section 112 Overview (cont.)

- MACT applies to major sources of emissions
  - > 10 tpy of any single HAP
  - > 25 tpy total HAP
- "Area" sources (i.e., non-major sources) also considered for regulation under 112

MACT Definition

The maximum degree of reduction in HAP emissions the Administrator determines is achievable, considering the cost of achieving the reduction and any non-air-quality health and environmental impacts and energy requirements [see § 112(d)(2)].

MACT must be at least as stringent as the "MACT floor"

MACT Floor Definition

For New Sources [see § 112(d)(3)]:

- The emission control achieved in practice by the best controlled similar source.

MACT Floor Definition (cont.)

For Existing Sources:

- The average emission limitation achieved by the best performing 12% of existing sources if 30 or more sources / facilities [see § 112(d)(3)(A)], or
- The average emission limitation achieved by the best performing 5 of the existing sources if fewer than 30 sources / facilities

MACT Floor Definition (cont.)

- MACT floor for existing sources
  - "Average" not defined in the Act
  - EPA interprets average as the central tendency of data or information
  - Average can be the mean or median or mode
  - Look at data or information and select average that best characterizes the "central tendency"

Categories and Subcategories

- Section 112 authorizes EPA to distiguish among "…classes, types, and sizes…" within a category or subcategory of sources in developing MACT regulations

Categories and Subcategories (cont.)

- EPA may subcategorize a source category in determining MACT floor and MACT
  - Subcategory: identifiable group of sources within a category which may be "different" from other sources in the category in terms of
    - Technical feasibility or applicability of emission control

MACT Reminder

Remember:

- MACT floor is the starting point for determining MACT
- MACT ≥ MACT floor

Overview of MACT Development Process

MACT Development Process

- Determine MACT Floor
- Identify alternatives more stringent than floor
- Consider costs, health, environmental and energy requirements of alternatives more stringent than MACT floor
- Determine MACT
- Propose regulations / public comment
- Promulgate regulation

Determine MACT Floor - Review Information

- Collect and review information available
  - Numbers and characteristics of sources
  - Emissions data
  - Control techniques
  - Performance of control techniques
  - Other regulations
  - Cost and economic information
- Consider how information could be used to determine MACT floor

Determine MACT Floor - Develop Approach

- Use the most logical and rational approach - given available information - to determine MACT floor
- Generally use some combination of the following:
  - Source test emission data
  - Technology or hardware in use
  - State regulations or permits

Determine MACT Floor - Objective

- Existing source MACT floor
  - Characterize level of emissions or level of emissions control achieved by the average of the best 12% of sources in subcategory
- New source MACT floor
  - Characterize level of emissions or level of emissions control achieved by the the best source in subcategory

Determine MACT Floor - Characterize Level of Emissions or Level of Emission Control

- MACT floor (and MACT) must be "achievable"
- Sources must be able to attain or achieve this level of emission control or reduction under the range of expected operating conditions, including the most adverse operating conditions reasonably expected to reoccur
- Knowledge or understanding must exist on "how to achieve or attain" for a level of emissions control or emissions reduction to be "achievable"

Identify Alternatives

- MACT may be more stringent than MACT floor
- Identify control techniques and achievable emission levels
- Develop regulatory alternatives more stringent than floor (if achievable)

Estimate & Consider Impacts of Alternative

- Emission reduction
- Cost of control
- Non-air quality health and environmental impacts
- Energy requirements
- Economic impacts
- Benefits

Determine MACT

Agency decision

Develop Proposal Package

- Draft and Revise
  - Preamble
  - Regulation
- Appropriate reviews within Agency, OMB
- Address other executive orders and Acts: SBREFA, Unfunded Mandates, RFA, PRA, ...

Propose Regulations / Public Comment

- Propose rule in Federal Register
- Public comment period / hearing if requested
- Summarize public comments
- Address public comments
  - Consider comments
  - Revise databases /reanalyze if substantive new information is presented
  - Prepare written comment responses

Promulgate Regulations

- Brief management on comments and possible changes to proposed rules
- EPA decision
- Promulgate rule in Federal Register

Presumptive MACT Development Process

- Definition
  - An estimate of MACT based on available data that can be obtained quickly

Presumptive MACT Development Process

- Purpose
  - To assist State and local agencies, industry and the public in Section 112(g) case-by-case MACT determinations and with Section 112(j) hammer provision standard
  - To enhance up front planning in the standards development process (i.e., identify issues to be resolved early in the process and identify key players)
  - To make recommendations for the proposed regulatory path

Presumptive MACT Development Process

- Process
  - Notification of interested parties
  - Team formation
  - Data gathering and identification of data gaps
  - Additional data collection
  - Evaluation of data and determination of PMACT

MSW LANDFILL Presumptive MACT

IV. Coordination with Other Rules and Programs

Ruth Mead, Eastern Research Group

NSPS and MACT

NSPS/EG - Section 111 of Clean Air Act

- Applies to landfill gas emissions measured as NMOC
- Based on "Best Demonstrated Technology"
- Standards for new and modified landfills
- Emission Guidelines implemented by States for existing landfills

NSPS and MACT

MACT - Section 112 of Clean Air Act

- Focus on listed Hazardous Air Pollutants (HAPs)
- Based on "Maximum Achievable Control Technology"
- Applies to all "major sources"
- New and existing sources

NSPS and MACT

MACT Standards Development Focus

- Assess HAP emissions from MSW landfills
- Determine what standards are needed for HAPs
  - Applicability (which landfills?)
  - Emission levels / control requirements

NSPS and MACT

Interaction between MACT and NSPS

- Requirements of NSPS and EG will be considered in determining HAP emissions from landfills
- Information collected during NSPS development will be useful for MACT development (but more recent information and more HAP-specific information is also needed)
- Will strive for consistency between NSPS and MACT where possible, within constraints of the Clean Air Act

Landfill Methane Outreach Program

- ➢ EPA program to facilitate and encourage landfill gas-to-energy projects
- ➢ EPA offices will coordinate during MACT development
- ➢ Information available from LMOP will be useful for MACT development

MSW LANDFILL Presumptive MACT

V. Landfill MACT Standard Development

Tom Waddell & Lisa Huff,
Eastern Research Group

Insert schedule slide here

Landfill MACT Schedule

Item	Schedule
➢ Site Visits	September-October 1998
➢ Draft Subcategorization	October 16, 1998
➢ Information Collection Request	October-December 1998
➢ Stakeholders' Meeting	November 3, 1998 / January 13, 1999
➢ P-MACT Decision	January 22, 1999
➢ Technical Memoranda Completed (e.g., subcategories, model plants)	March 25, 1999
➢ MACT Floor Memo Completed	March 31, 1999
➢ Background Information Document	June 1999
➢ Propose MACT	November 1999
➢ Promulgate MACT	November 2000

Data Needed for Standard Development

Data Item	Uses of Item
Number of landfills	• To identify number of landfills in best 12% for floor • National emission estimate • Cost • Economic impacts
Landfill names / locations	• Determine state/local regs. that apply (may be part of floor determination) • Determine regional economic impacts • Input to the benefits analysis • Contacts for additional information

Data Needed for Standard Development

Data Item	Uses of Item
Size of landfill (e.g., design capacity, waste in place, acceptance rate)	• Determine need to subcategorize by size • Determine small landfills
Contact name, phone, address	• Acquire information
Waste characteristics (organics, density), design and operational information	• Estimate emissions • Economic analysis • Determine need to subcategorize

Data Needed for Standard Development

Data Item	Uses of Item
Controls in use (including pollution prevention) and control effectiveness	• Determine MACT floor • Identify regulatory alternatives above MACT floor • Estimate emission impacts of regulatory alternatives
Emission data, emission estimates, permit data	• Identify HAPs of interest • Determine MACT floor • Estimate current emission • Estimate emission impacts of regulatory alternatives

Data Needed for Standard Development

Data Item	Uses of Item
Control costs	• Estimate cost impacts of regulatory alternatives • Input for economic analysis
Landfill construction and operation costs, tipping fees, market structure, etc.	• Estimate economic impacts of regulatory alternatives

Landfill MACT Standard Development

HAPs of Concern From Landfills

➢ Benzene, Dioxins, other organics

➢ HCl

➢ Hg, Cd, other metals

Landfill MACT Standard Development

Data Gathering

Lisa Huff, Eastern Research Group

Data Status

Landfill Population

Population estimates vary greatly:

Pinpoint	= 2,575
SWANA	= 5,123
EPA list	= 3,536
EPA LMOP	= 1,933
EPA OW	= 10,330

Landfill Population

See Exhibit # 1

"Landfill Estimates by EPA Region"
"Landfill Estimate by State"

Landfill Population Characteristics

	Pinpoint	SWANA	EPA List	LMOP
Name & Address	2575 (dups.?)	5123 (dups.?)	3536	1933
Capacity	600	550		192
Waste In Place	550 (calc.)	600 (calc.)		1443
Acceptance Rate	2500	2300 (daily) 1500 (yearly)		1476
Gas Collect & Control	550	200		420
Open/Close Date	2500	500		Open dates for 1333 LFs Close dates for 1365 LFs
Leachate Collect & Control	2500	500		0
Emissions Estimates		50 (methane) 120 (LFG)		1417

Landfill NMOC Emissions

Emission Guidelines: State Plan Inventories

- Will provide NMOC emissions estimates for LFs with capacity $\geq$2.5 MMg or 2.5 Mcm
  - Currently have NMOC emission estimates for 18 states and 748 landfills

Landfill Emissions

Emission Guidelines: State Plan Inventories

- Will provide design capacities for LFs accepting waste since Nov. 8, 1987
  - Currently have design capacities for 19 states and 748 landfills

HAP Emissions

- Emission tests - after control devices (ICCR)
- Metals and organics data from testing at Freshkills Landfill
- Test reports for organics & Hg from AP-42
- Other limited landfill gas analysis data

ICCR Landfill HAP Emissions

Emission Test Database (in-house)	29 tests for flares at 8 facilities
Requested Tests (awaiting arrival)	3 tests from flares at 2 facilities
Tests that will be requested	115 tests for flares at 23 facilities

Gas Collection Systems

- LMOP identifies if gas collection system is present
  - 421 collection systems indicated out of 1933 records

Control Technology

- ICCR and LMOP - will provide counts of the number of flare units
- LMOP

  Flares 41 landfills from 1933 records
- LMOP also provides information on landfill gas-to-energy projects / technologies in use

Data Problems

- Documentation needed!
  - Completeness?
  - Reliability of data collection methods?
  - If merge data, then apples versus oranges?
    - Do emission estimates use the same method?
      - (May need to re-estimate emissions using landfill characteristics and one standard procedure.)
    - Are data collection techniques comparable?

Data Needed

- Certainty of population estimate and characteristics of landfills (size, open/close dates, etc.)
- Representative of total population?
- Test data for HAPs
- Refined estimations of L_O and k (values used in models to estimate emissions)

And More Data Needed

- Collection and control efficiency and costs
- Pollution prevention effects
- Economics of industry (construction & operation costs, tipping fees, market structure, etc.)
- Emerging technologies

DATA DATA DATA DATA

Recommendations to fill gaps?

Site visit recommendations?

HAP emission estimates?

Discussion

Data Analysis Plan

Tom Waddell, Eastern Research Group

Data Analysis: Databases

- Determine reliability of each database identified
- Build unique MACT database using best data from each
- Evaluate representativeness and need to subcategorize
- Determine MACT floor(s)

Data Analysis: Technology

- Determine HAP removal performance of available technologies
- Rank technologies in order of effectiveness
- Evaluate emerging technologies

Data Analysis: Emissions

- Screen data from test reports and landfill gas analyses for completeness and validityof test/analysis methods
- Develop database of HAP emission data
- Determine achievable emission levels

Other Issues of Particular Interest to Stakeholders?

VI. Future Stakeholder Involvement

Michele Laur, EPA

Meetings

Tentatively:

November 3, 1998 (all stakeholders; results to date, draft subcategories, draft control)

January 13, 1999 (all stakeholders; findings, draft PMACT)

Adjourn

See you next time.
Thanks!
Have a safe trip home.